Statistical Analysis Background

Statistical analyses of data derived from Child Fatality Review Teams is an important facet of the child fatality review process. ***Analyses of this data provide a more thorough and comprehensive understanding of the causes and circumstances surrounding child fatalities in Texas.*** Whereas information from death certificates provides a demographic understanding of child fatalities, only the more detailed information available from child fatality review team reports can indicate the specific information regarding how, where, and under whose supervision did an event occur. This more complete understanding of the scope and nature of child fatalities in Texas can be used to suggest preventive interventions that could be implemented.

Data for this report is derived from three sources: Bureau of Vital Statistics death certificates, Child Fatality Review Team reports, and population estimates from the Texas A&M University State Data Center (used as the denominator in determining mortality rates). Information from death certificates includes demographic information about the child, county of residence, and the date and cause of death. Child Fatality Review Team (CFRT) data supplies more detailed information about the circumstances involved in each death. For purposes of this report, data from individual reports from the Child Fatality Review Teams were linked with death certificates. This report includes analyses of 4,009 reported deaths which occurred in Texas to children under the age of 18 and 1,068 reviewed cases of these 1995 deaths. This represents all reviewed cases that were available for analysis as of September 1, 1996, not all 1995 deaths reviewed by the CFRTs.

The reader should take note of the format for this statistical report. After a section providing a general overview of child mortality in Texas for 1995, counts of an event and incidence rates are presented for specific causes of death from death certificate information. For each cause of death this is followed by more detailed information derived from the CFRTs. Each graph and table cites the source of data. Data derived from death certificates is cited as 'Texas Department of Health, Bureau of Vital Statistics'. The source of data used from the review teams is noted as 'Child Fatality Review Teams'. Specific information about the circumstances of death were not always available for all reviewed deaths, therefore each the number of cases in which the information was available is noted within each graph. ***Although only 26% of all 1995 Texas child fatalities have been reviewed for this report, the reader will note that the proportion of reviewed deaths is much higher for particular causes of death.*** For example, 58% of the homicide deaths were reviewed by child fatality teams. While the proportion of reviewed deaths is relatively low, the demographic characteristics of these cases are similar enough to the 'unreviewed' cases to lend some degree of confidence that the specific circumstances of death derived from the reviews accurately reflect 1995 child fatalities in Texas.

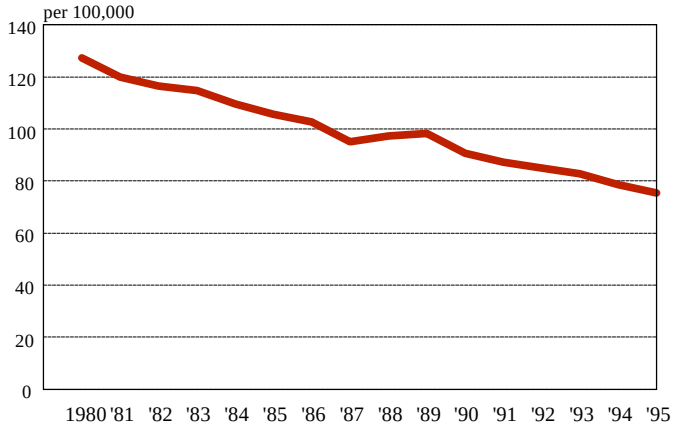
It should also be noted that not all questions regarding child fatalities will be answered in this report. With teams at various stages of development, there is wide disparity in availability of information and completeness of reporting. Thus, we are presently unable to provide detailed information, for example, on the caretaker of the child or the extent of child

on child violence. These limitations of the data, however, are providing us lessons on how to best improve the quality of data collection, compilation, and reporting. It is believed that many of these situations can be improved with the implementation of the recommendations regarding data quality.

TEXAS CHILD MORTALITY TRENDS
1980-1995

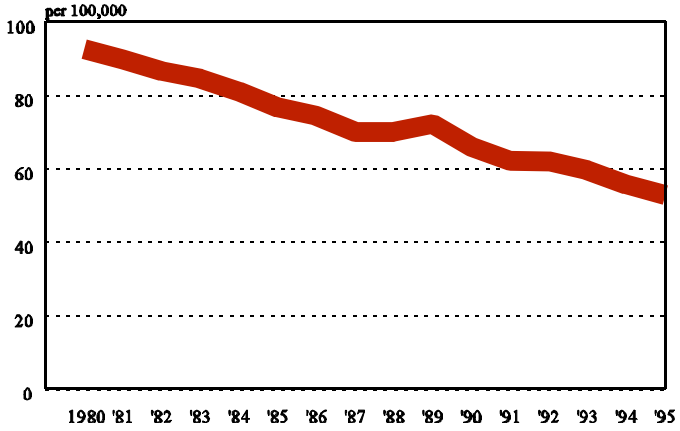
To understand child mortality in Texas, it is important to examine the trends over time. As demonstrated by the following graphs, rates of mortality for children less than 18 years old have generally been decreasing since 1980. These are very encouraging signs, indeed! Yet, closer examination reveals that some specific causes of death have declined quite dramatically, such as suffocation/strangulation deaths, while others, like SIDS deaths, have declined at a slower rate. Yet, more striking is the *increase* in intentional deaths to children. The increase in homicide, suicide, and firearm deaths, as well as the significant number of child deaths due to other causes, demonstrate the continued need for attention to this issue.

Texas Child Mortality
1980-1995



Source:Texas Department of Health, Bureau of Vital Statistics

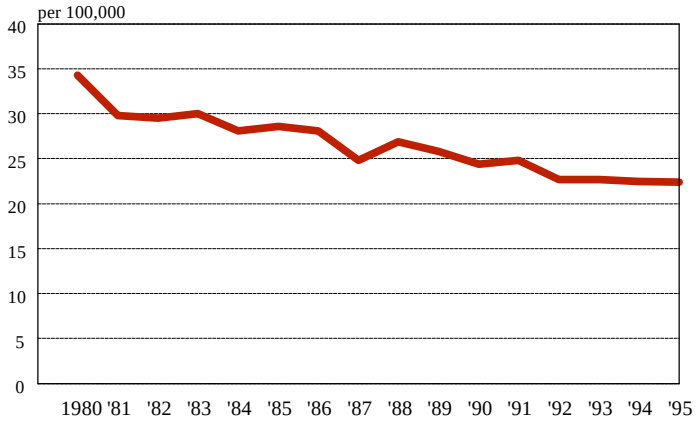
Natural* Causes of Child Mortality
Texas, 1980-1995



Source:Texas Department of Health, Bureau of Vital Statistics

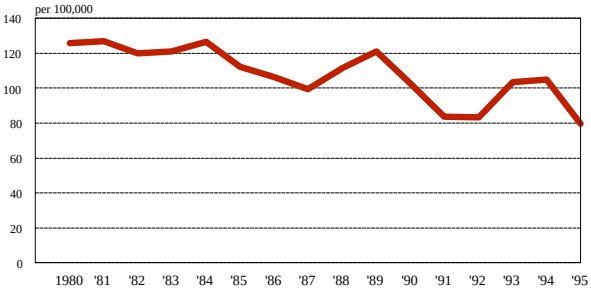
* See selection regarding "Natural Causes"

Texas Child Injury Deaths
1980 - 1995



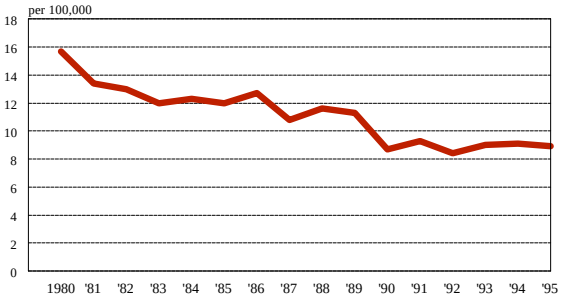
Source:Texas Department of Health, Bureau of Vital Statistics

Texas SIDS Deaths
1980 - 1995



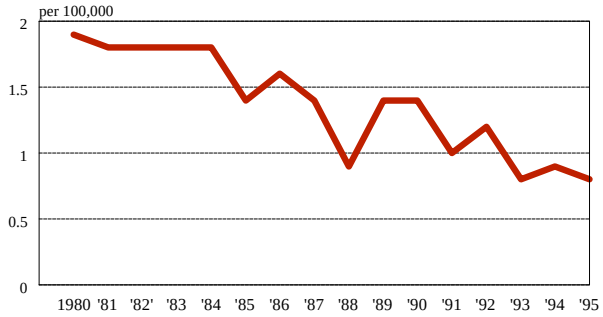
Source:Texas Department of Health, Bureau of Vital Statistics

Motor Vehicle Fatalities
1980 - 1995



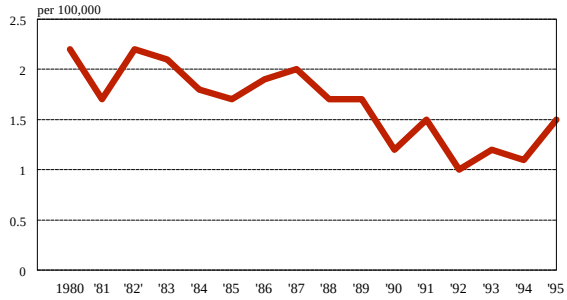
Source:Texas Department of Health, Bureau of Vital Statistics

Suffocation/Strangulation Deaths
1980 - 1995



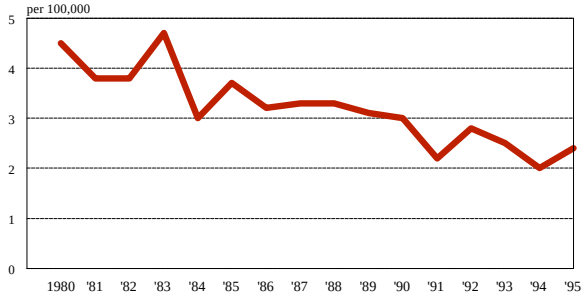
Source:Texas Department of Health, Bureau of Vital Statistics

Fire/Burn Deaths
1980 - 1995



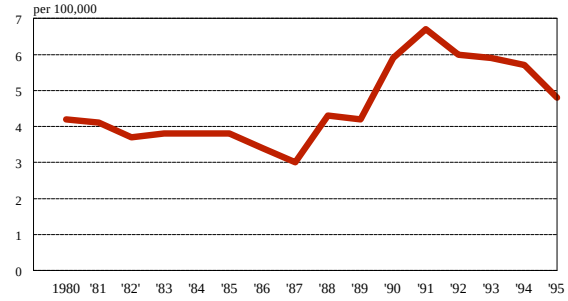
Source:Texas Department of Health, Bureau of Vital Statistics

Texas Child Drowning Deaths
1980 - 1995



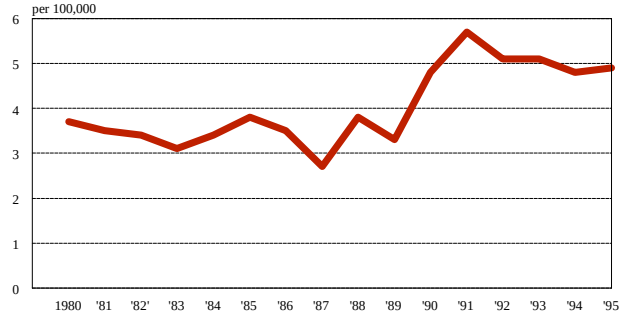
Source:Texas Department of Health, Bureau of Vital Statistics

Texas Child Firearm Deaths
1980 - 1995



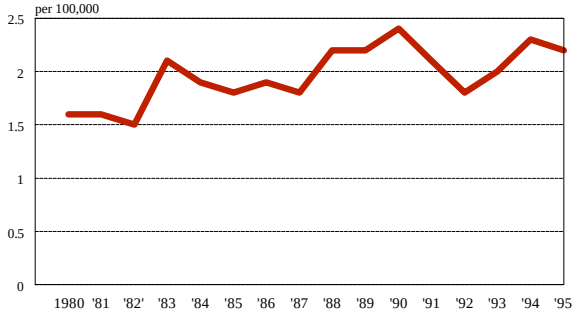
Source:Texas Department of Health, Bureau of Vital Statistics

Texas Child Homicide Deaths
1980 - 1995



Source:Texas Department of Health, Bureau of Vital Statistics

Texas Child Suicide Deaths
1980 - 1995



Source:Texas Department of Health, Bureau of Vital Statistics

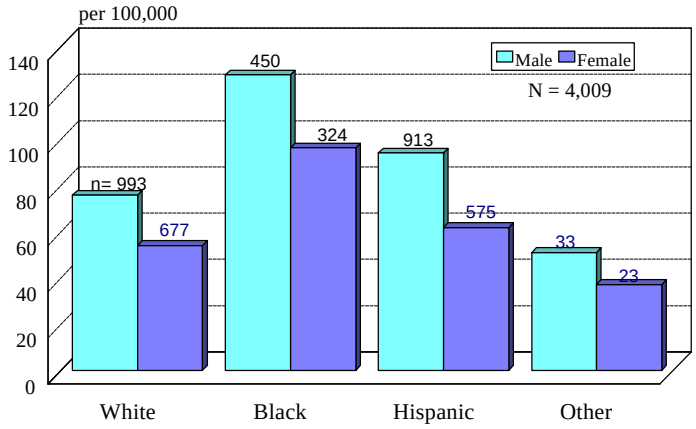
In 1995 there were 4,009 reported deaths in Texas of children under the age of 18. This is a 3% decrease from the number of child fatalities reported in 1994 and continues the steady pattern evident since at least 1980. Whereas in 1980 there were 127 deaths for every 100,000 children in the population, the rate has declined to 75 per 100,000 in 1995, a 41% decrease.

. 17% of the counties did not have any reported child fatalities in 1995.

. The county average rate of mortality is 75 deaths for every 100,000 children in the population.

. 13% of the counties had child mortality rates greater than 125 per 100,000 population; generally, these are the less populated counties.

1995 Texas Child Mortality Rates
by Race and Sex

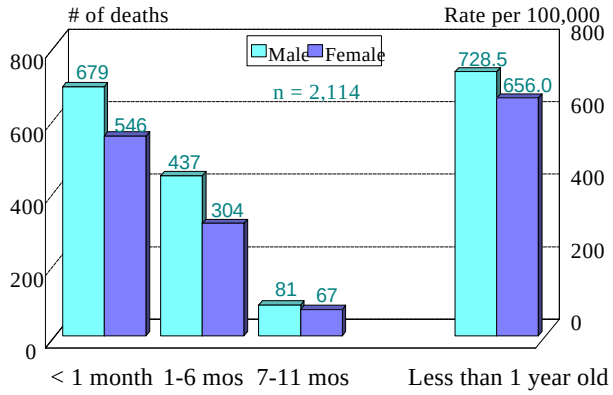


Source: Texas Department of Health, Bureau of Vital Statistics

. Mortality rates for males are 42% greater than for females.

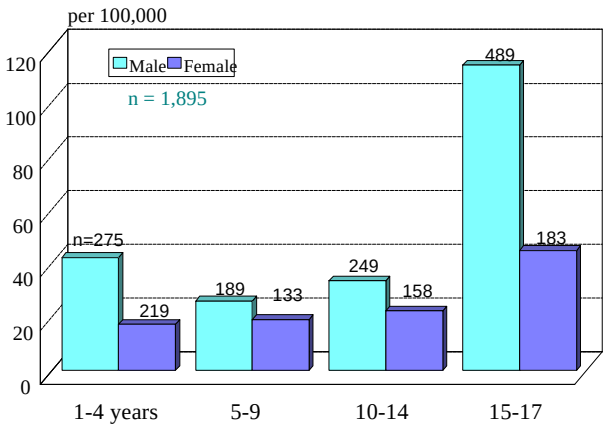
. Mortality rates for African-American children are 42% higher than for other racial groups.

1995 Texas Infant Mortality
Incidence and Rate



Source: Texas Department of Health, Bureau of Vital Statistics

1995 Texas Child Mortality Rates
by Age and Sex



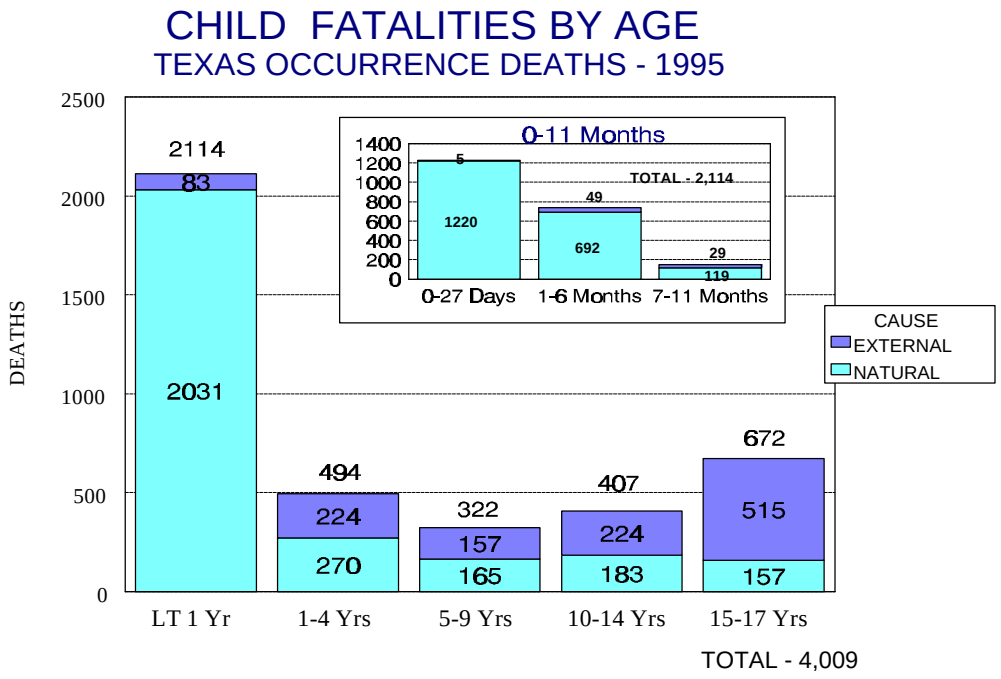
Source:Texas Department of Health, Bureau of Vital Statistics

. 53% of Texas childhood deaths occur to infants (children younger than 1 year of age).

. 58% of the infants who die do so within the first month of birth.

. Mortality rates for infants are 5- 30 times higher than the rates for other age children.

. Mortality rates for 15-17 year males are more than double their female counterparts.



. 96% of infant (children less than 1 year old) fatalities are due to natural causes.

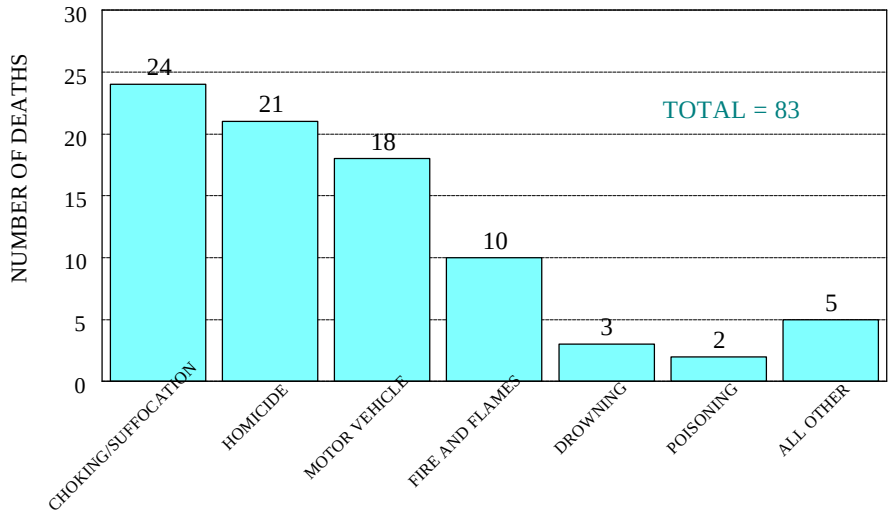
. Natural causes account for the most deaths until age 15, when injuries become the leading manner of death.

. Injuries account for nearly 40% of the fatalities of children older than 1 year.

1995 LEADING CAUSES OF DEATH
INFANTS

CAUSE	DEATHS	%
Congenital Anomalies	555	26.3
SIDS	254	12.0
Disorders Relating to Short Gestation and Unspecified Low Birth weight	240	11.4
Respiratory Distress Syndrome	88	4.2
Newborn Affected by Maternal Complications of Pregnancy	65	3.1
Accidents and Adverse Effects	59	2.8
Infections Specific to Perinatal Period	53	2.5
Newborn Affected by Complications of Placenta, Cord, and Membranes	52	2.5
Pneumonia and Influenza	42	2.0
Neonatal Hemorrhage	29	1.4
Intrauterine Hypoxia and Birth Asphyxia	24	1.1
Homicide	21	1.0
Septicemia	15	0.7
All Other	617	29.2
TOTAL	**2,114**	**100.0**

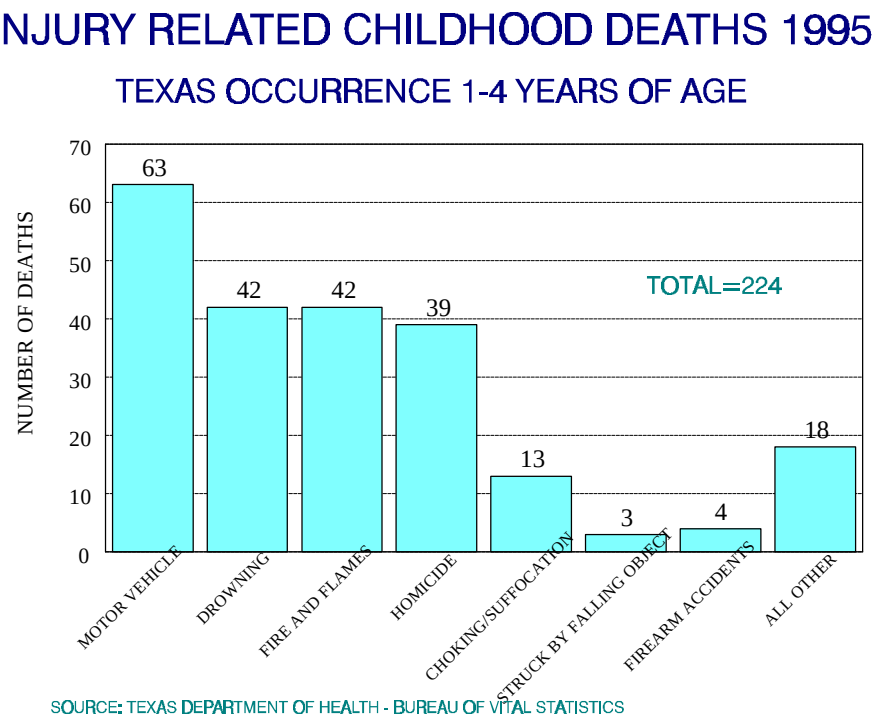
INJURY RELATED CHILDHOOD DEATHS 1995
TEXAS OCCURRENCE LESS THAN ONE YEAR OF AGE



SOURCE: TEXAS DEPARTMENT OF HEALTH - BUREAU OF VITAL STATISTICS

1995 LEADING CAUSES OF DEATH
AGES 1 -4 YEARS

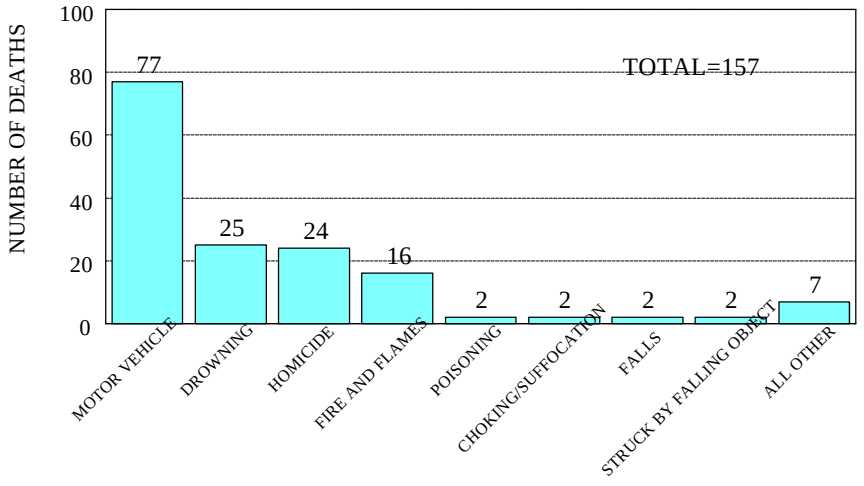
CAUSE	DEATHS	%
Accidents	183	37.0
Malignant Neoplasms	49	9.9
Congenital Anomalies	45	9.1
Homicide	39	7.9
Diseases of the Heart	26	5.3
HIV Infection	13	2.6
Pneumonia and Influenza	11	2.2
Certain Conditions Originating in the Perinatal Period	5	1.0
Cerebrovascular Diseases	5	1.0
Septicemia	5	1.0
Chronic Obstructive Pulmonary Diseases and Allied Conditions	4	0.8
Meningococcal Infection	4	0.8
Acute Bronchitis	4	0.8
All Other	101	20.4
TOTAL	**494**	**100.0**



1995 LEADING CAUSES OF DEATH
AGES 5 - 9 YEARS

CAUSE	DEATHS	%
Accidents	132	41.0
Malignant Neoplasms	51	15.8
Homicide	24	7.5
Congenital Anomalies	21	6.5
Diseases of the Heart	17	5.3
Pneumonia and Influenza	8	2.5
HIV Infection	6	1.9
Anemias	3	0.9
Chronic Obstructive Pulmonary Diseases and Allied Conditions	3	0.9
Certain Conditions Originating in the Perinatal Period	2	0.6
All Other	55	17.1
TOTAL	**322**	**100.0**

INJURY RELATED CHILDHOOD DEATHS 1995
TEXAS OCCURRENCE 5-9 YEARS OF AGE



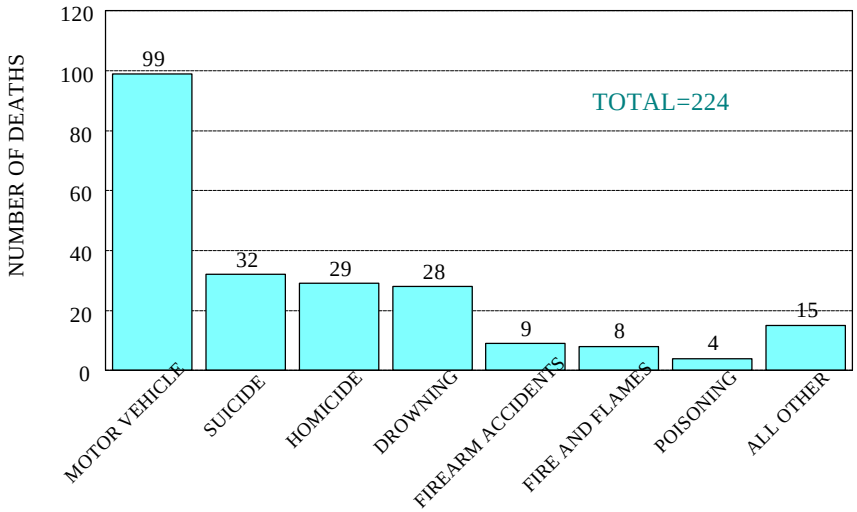
SOURCE: TEXAS DEPARTMENT OF HEALTH - BUREAU OF VITAL STATISTICS

1995 LEADING CAUSES OF DEATH
AGES 10 - 14 YEARS

CAUSE	DEATHS	%
Accidents	159	39.1
Malignant Neoplasms	62	15.2
Suicide	32	7.9
Homicide	29	7.1
Congenital Anomalies	15	3.7
Diseases of the Heart	14	3.4
Chronic Obstructive Pulmonary Diseases and Allied Conditions	10	2.5
HIV Infection	4	1.0
Pneumonia and Influenza	2	0.5
Anemias	2	0.5
Benign Neoplasms	2	0.5
Meningococcal Infection	2	0.5
All Other	74	0.8
TOTAL	**407**	**100.0**

INJURY RELATED CHILDHOOD DEATHS 1995

TEXAS OCCURRENCE 10-14 YEARS OF AGE

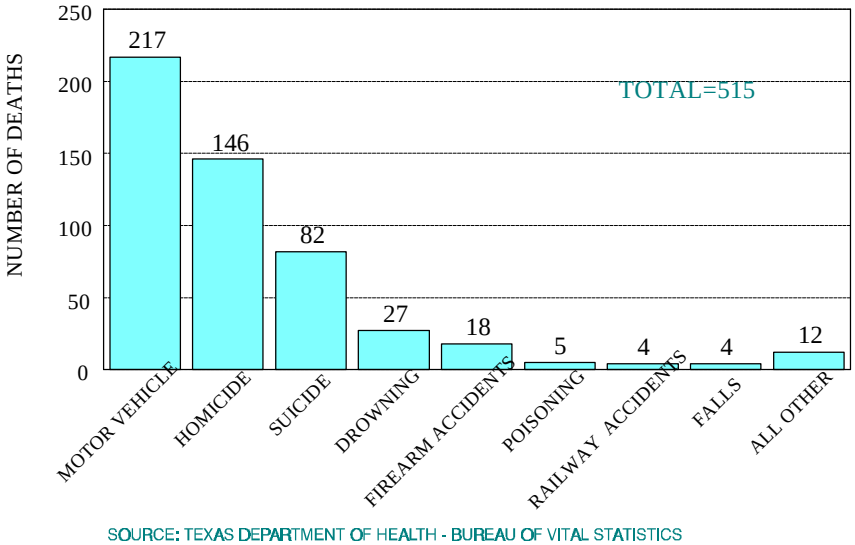


SOURCE: TEXAS DEPARTMENT OF HEALTH - BUREAU OF VITAL STATISTICS

1995 LEADING CAUSES OF DEATH
AGES 15 - 17 YEARS

CAUSE	DEATHS	%
Accidents	282	42.0
Homicide	146	21.7
Suicide	82	12.2
Malignant Neoplasms	37	5.5
Diseases of the Heart	21	3.1
Congenital Anomalies	10	1.5
Chronic Obstructive Pulmonary Diseases and Allied Conditions	5	0.7
Cerebrovascular Diseases	4	0.6
Meningococcal Infection	4	0.6
Septicemia	3	0.4
HIV Infection	3	0.4
Pneumonia and Influenza	2	0.3
All Other	73	10.9
TOTAL	**672**	**100.0**

INJURY RELATED CHILDHOOD DEATHS 1995
TEXAS OCCURRENCE 15-17 YEARS OF AGE



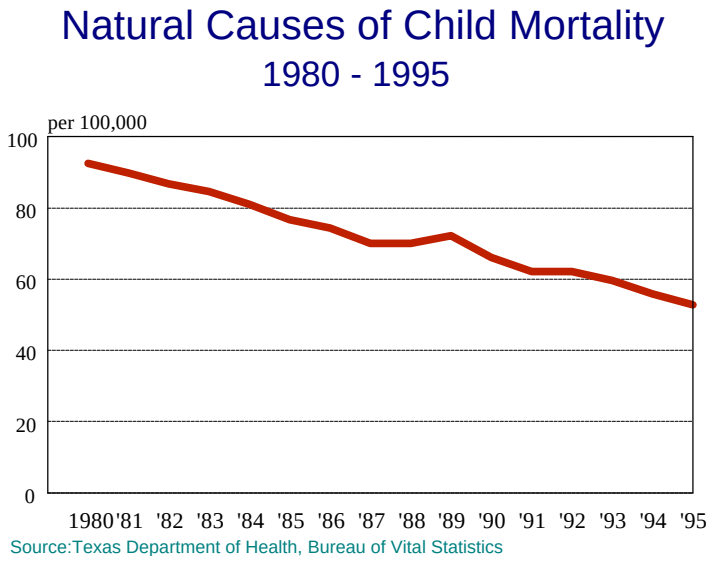
SOURCE: TEXAS DEPARTMENT OF HEALTH - BUREAU OF VITAL STATISTICS

NATURAL CAUSES OF DEATH

Deaths identified as "natural" are deaths associated with diseases, congenital anomalies, perinatal conditions, and certain ill-defined conditions. They are to be distinguished from "external" causes of death which, generally, can point to one specific external event that initiated the chain of morbid conditions that resulted in death such as car wreck, shooting, fire, shaking, etc.

Deaths identified as "natural" are somewhat misnomered. They are not necessarily expected and many are preventable. There is nothing natural about a child dying. The term is only used to distinguish between those deaths due to external causes. Especially with child deaths, we cannot overlook prevention strategies which could reduce the number of fatalities in this population group.

There were 2,806 child deaths in Texas due to natural causes during 1995. These deaths account for 70% of all deaths of children under the age of 18. Since 1980 the mortality rate due to natural causes has consistently declined to 52.8 deaths per 100,000 population in 1995.



. The child mortality rate from natural causes has decreased 43% since 1980.

1995 CHILD DEATHS DUE TO NATURAL CAUSES

SEX		
	#	Rate*
M	1,591	58.6
F	1,215	46.7
Total	2,806	52.8

RACE		
	#	Rate
*W***	1,119	43.4
B	565	80.6
H	1,068	55.9
O	44	34.7
10 of undetermined race		

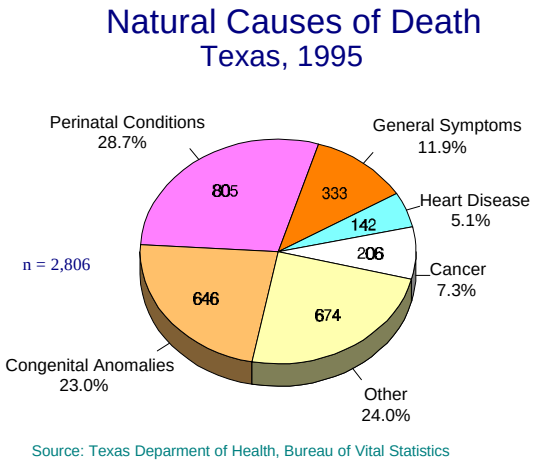
AGE		
	#	Rate
< 1 yr.	2,031	624.7
1-4	270	21.2
5-9	165	11.5
10-14	183	12.6
15-17	157	18.9

HIGH INCIDENT COUNTIES ‡		
	#	Rate
Harris	471	52.7
Dallas	293	52.2
Bexar	218	58.1
Tarrant	189	51.6
El Paso	101	46.0
Hidalgo	98	60.3

* per 100,000 population ****White;Black;Hispanic;Other** ‡ County of Residence

Source: Texas Department of Health, Bureau of Vital Statistics

- Females account for a larger share of natural deaths than in any other manner of death.
- Mortality rates for African-American children are 31% higher than for Hispanic children.
- 75% of the deaths due to natural causes occur to children less than 1 year of age.



- Perinatal conditions and congenital anomalies accounted for more than 51% of natural deaths of children.

SUDDEN INFANT DEATH SYNDROME

Sudden Infant Death Syndrome (SIDS), or "Crib Death" is defined as the sudden unexpected death of a previously well infant in which a complete postmortem (autopsy) examination by a competent pathologist fails to reveal an adequate cause of death. There are an estimated 6,000 SIDS cases each year in the United States and it is the most common cause of death in infants between the ages of one month and one year.

The 255 SIDS deaths in Texas accounted for 6% of all child fatalities during 1995. This is a 24% decrease from the number of SIDS deaths during 1994 and brings the death rate down to the previous lows in 1991 and 1992.

SEX		
	#	Rate*
M	154	0.93
F	101	0.64
Total	255	0.79

RACE		
	#	Rate
*W***	112	0.81
B	64	1.65
H	76	0.56
O	2	0.22
1 of undetermined race		

AGE		
	#	%
< 1 mo.	14	5.5%
1-2 mo.	124	48.6%
3-4 mo.	79	31.0%
5-11 mo.	38	14.9%

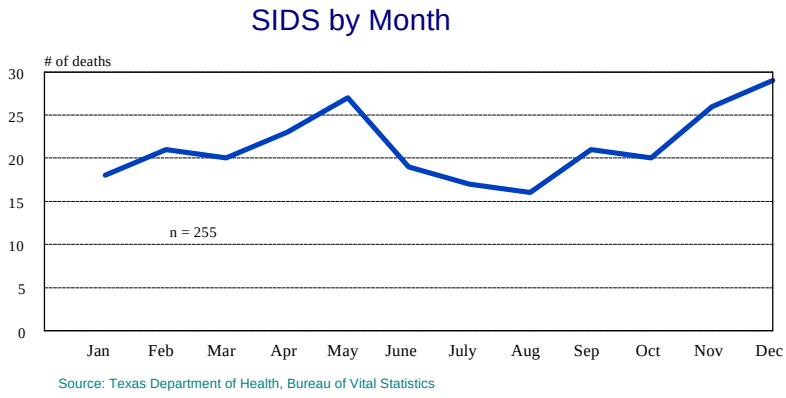
HIGH INCIDENT COUNTIES ‡		
	#	Rate
Harris	47	0.82
Dallas	27	0.73
Tarrant	20	0.92
Bexar	19	0.84

* per 1,000 live births **W**hite;**B**lack;**H**ispanic;**O**ther ‡ County of Residence

Source: Texas Department of Health, Bureau of Vital Statistics

. The SIDS mortality rate for White infants is 31% higher than for Hispanic infants.

. 80% of the SIDS deaths occurred to infants between 1 and 4 months of age.

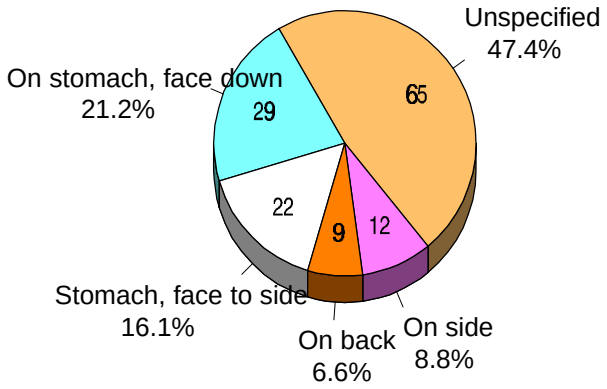


. SIDS deaths follow 2 periods of increasing totals separated by a summer decrease.

. 45% of the SIDS deaths were reviewed by child fatality teams.

Position of Infant in Reviewed SIDS Cases

n = 137



Source: Child Fatality Review Teams

. The baby was found on its stomach in at least 37% of the reviewed SIDS cases.

. 12% of the infants were in bed with a parent(s) or sibling(s).

. 6 infants were reported to have died while sleeping somewhere other than at home.

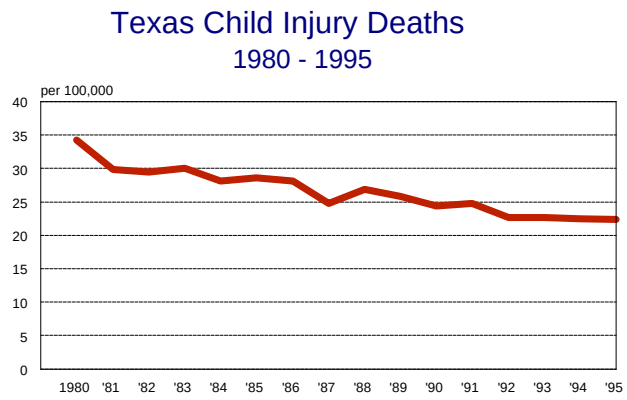
. 2 cases certified as SIDS were found by child fatality review teams to have died from suffocation.

A 2-month old baby was being cared for by the father while the mother worked. The father fed the baby and then placed her in a play pen for a nap. The mother called the house and heard the baby crying. When she arrived home, she found the baby unresponsive. The baby had been placed to sleep on her stomach and was still in the same position when found. CPR was started by the parents prior to medical help arriving. The baby died at the hospital.

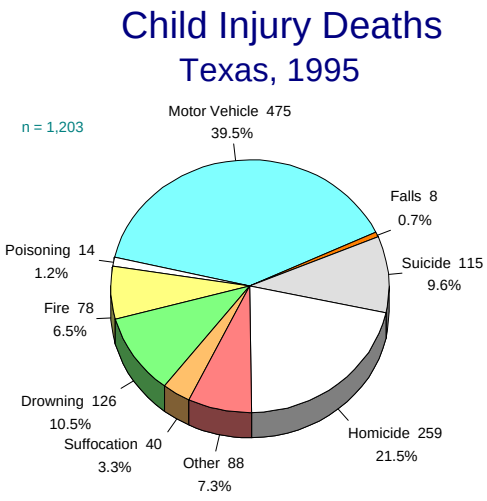
CHILD INJURY DEATHS

Injury is defined as unintentional or intentional damage to the body resulting from acute exposure to thermal, mechanical, electrical, or chemical energy or from the absence of such essentials as heat or oxygen. Motor vehicle and gunshot deaths involve the transfer of excessive mechanical energy. Suicide by asphyxiation and unintentional drowning involve the absence of an essential element. Thus, this definition encompasses the similar mechanisms of death, yet accounts for the varied causes.

Injuries are the second leading cause of death for Texas children, accounting for 30% of all childhood fatalities during 1995. There were 1,202 such deaths, a slight increase from the 1994 total (1,197). The 1995 mortality rate of 22.6 per 100,000 indicates that approximately 23 of every 100,000 children in Texas died from some type of injury. This rate has been steadily declining from a high of 34.3 per 100,000 in 1980.



Source:Texas Department of Health, Bureau of Vital Statistics

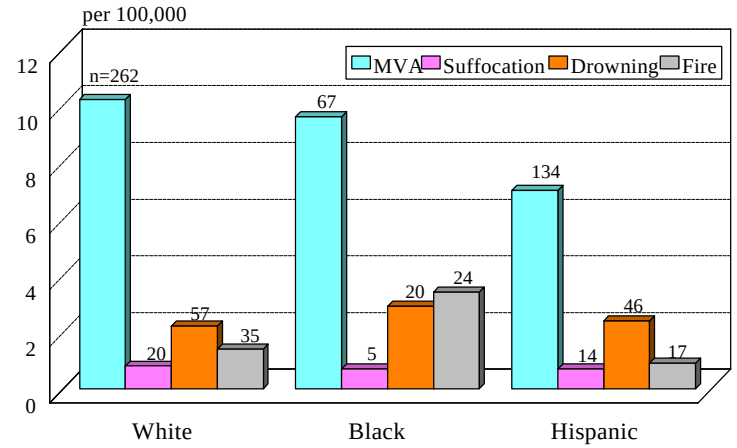


Source:Texas Department of Health, Bureau of Vital Statistics

. The largest proportion of 1995 childhood injury deaths occurred in motor vehicle accidents.

. More than 30% of the 1995 childhood injury deaths were intentional (homicide and suicide).

Select Unintentional Child Injury Deaths
by Race



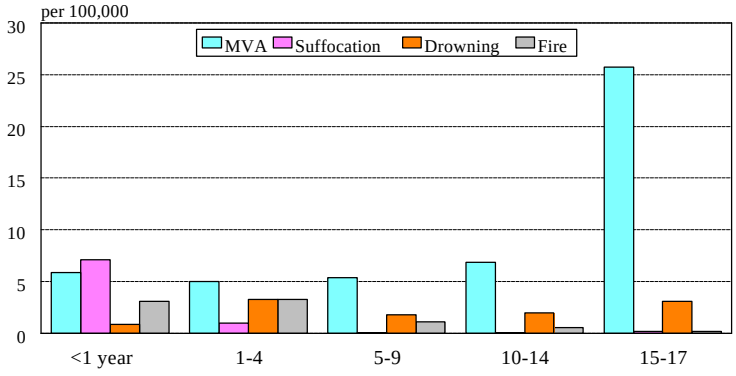
Source:Texas Department of Health, Bureau of Vital Statistics

. Mortality rates due to motor vehicle accidents (MVA) are highest among White youth.

. Among all racial groups, MVA mortality rates are 3- 4.5 times greater than for other injuries.

. Fatality rates due to fires are about 3 times greater for African-Americans than for other racial groups.

Select Unintentional Child Injury Deaths
by Age



Source:Texas Department of Health,Bureau of Vital Statistics

. The highest rate of unintentional injury mortality among infants is due to suffocation.

. Motor vehicle mortality rates remain relatively stable until age 15.

. Drowning rates trail only motor vehicle fatalities in all age groups except infants.

MOTOR VEHICLE FATALITIES

Motor vehicle accidents were responsible for 12% of all childhood fatalities in Texas during 1995. After declining steadily throughout the 1980s, rates have stabilized since 1990 and motor vehicle accidents remain the third leading cause of death for children under age 18.

SEX	#	Rate*
M	293	10.7
F	182	7.0
Total	475	8.9
N = 475		

RACE	#	Rate
*W***	264	10.2
B	67	9.6
H	134	7.0
O	10	7.9

AGE	#	Rate
< 1 yr.	18	5.8
1-4	63	5.0
5-9	77	5.4
10-14	100	6.8
15-17	217	25.7

HIGH INCIDENT COUNTIES ‡	#	Rate
Harris	42	4.7
Dallas	41	7.3
Tarrant	33	9.0
Bexar	23	6.1
Hidalgo	16	9.8

* per 100,000 population ** **W**hite;**B**lack;**H**ispanic;**O**ther ‡ County of Residence

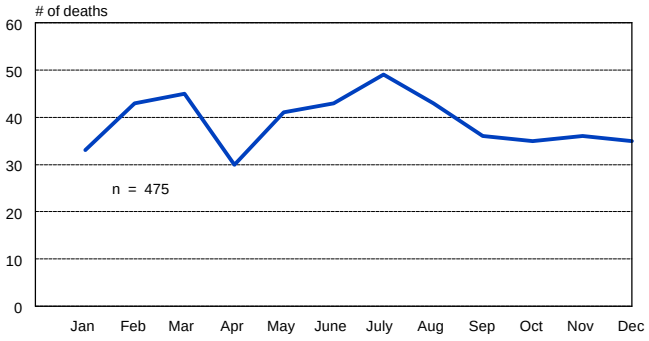
Source: Texas Department of Health, Bureau of Vital Statistics

. The motor vehicle accident (MVA) mortality rate for male children is 35% higher than for females.

. Mortality rate from MVA among Hispanic youth is about 30% lower than for other racial groups.

. The MVA mortality rate for youth ages 15-17 is nearly 4 times that for any other age group.

Motor Vehicle Fatalities by Month

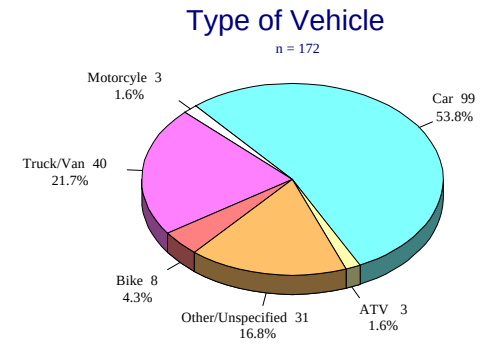


Source:Texas Department of Health, Bureau of Vital Statistics

. Motor vehicle fatalities dip in April and peak during summer months.

. 36% of the motor vehicle child fatalities were reviewed by CFR teams.

REVIEWED MOTOR VEHICLE FATALITIES

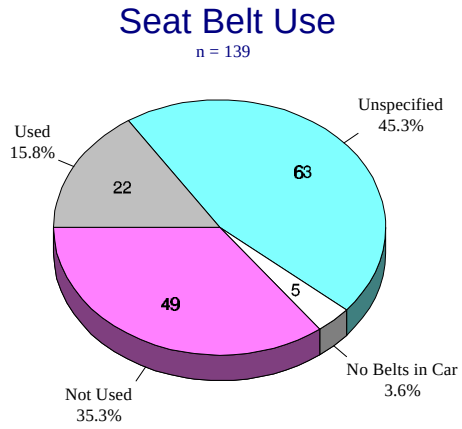


Source:Child Fatality Review Teams

. There were more than twice as many motor vehicle fatalities involving children in cars than pickup trucks or vans.

. Most of the children in motor vehicle fatalities were passengers; this was true for all age-groups.

. In 63% of the bike and motorcycle fatalities reviewed, children were not wearing a helmet.



Source:Child Fatality Review Teams

. Nearly 40% of the reviewed cases reported seat belts present in the vehicle, but not used at time of the accident.

. In six cases, the driver of the vehicle involved in the fatal accident was under 15 years of age.

. 30% of the reviewed motor vehicle fatalities could be attributed to driver error (DUI, speeding, other violation).

DROWNINGS

Drowning is the second leading cause of unintentional death for Texas children during 1995. The 126 deaths represent a 17% increase from 1994, with most of the increased number of deaths occurring to children over age 9. This increase notwithstanding, the trend since the early 1980's has been a steady decline in the drowning rate.

SEX	#	Rate*
M	81	3.0
F	45	1.7
Total	126	2.4

RACE	#	Rate
*W***	57	2.2
B	20	2.9
H	46	2.4
O	3	2.4

AGE	#	Rate
< 1 yr.	3	0.9
1-4	42	3.3
5-9	26	2.1
10-14	29	2.0
15-17	26	3.1

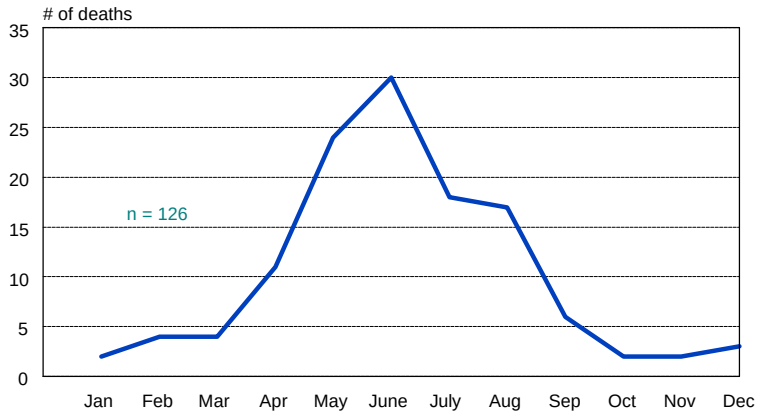
HIGH INCIDENT COUNTIES ‡	#	Rate
Harris	18	2.0
Dallas	14	2.5
Hidalgo	6	3.7
Tarrant	5	1.4
Johnson	4	12.3

* per 100,000 population ** **W**hite;**B**lack;**H**ispanic;**O**ther ‡ County of Residence

Source: Texas Department of Health, Bureau of Vital Statistics

- Drowning rates for male children were 77% higher than for females.
- There is little difference between racial groups in drowning rates.
- One-third of the drownings occurred to children 1- 4 years of age.

Drownings by Month

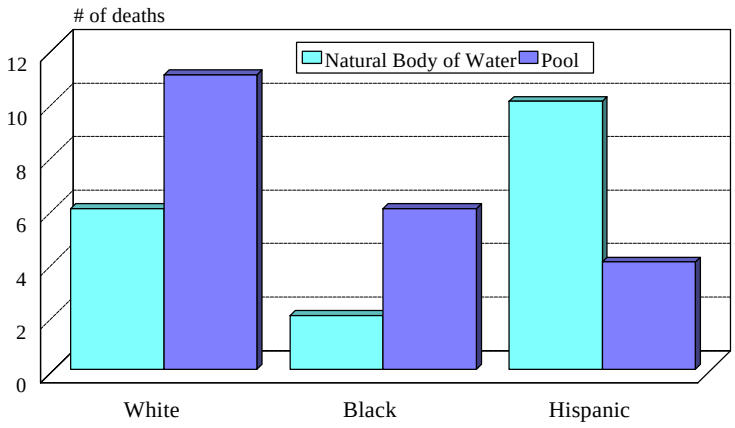


Source:Texas Department of Health, Bureau of Vital Statistics

- 71% of drowning deaths occurred between May and August.
- 43% of the child drownings were reviewed by child fatality teams.

REVIEWED DROWNING DEATHS
(n = 54)

Place of Drowning
by Race

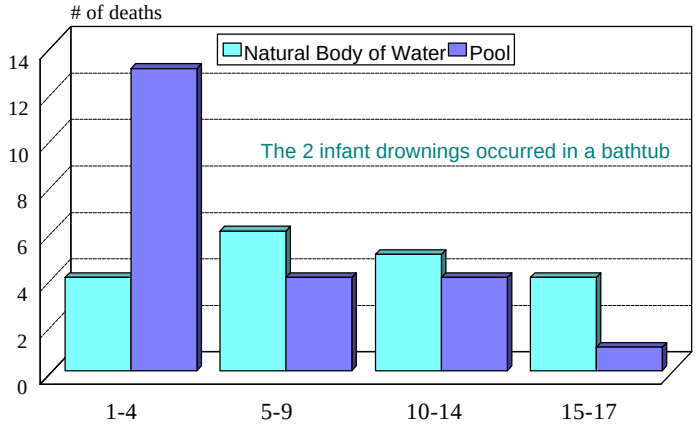


Source:Child Fatality Review Teams

. The majority of the pool drownings reviewed by child fatality teams occurred to White children.

. Unlike other racial groups, most of the drownings of Hispanic children reviewed by child fatality teams occurred in a natural body of water (lake, river, creek, etc.).

Place of Drowning
by Age



Source:Child Fatality Review Teams

. Unlike other age groups, most of the drownings of children ages 1- 4 years occurred in a natural body of water (lake, river, creek, etc.).

. In 83% of the reviewed drownings, the child was not wearing any type of flotation device.

SUFFOCATION/STRANGULATION DEATHS

The number of unintentional deaths due to suffocation and strangulation during 1995 decreased 20% from the 1994 total. This continues a trend of steady decline evident since 1984. Despite this decline, suffocation remains one of the ten leading causes of childhood fatalities in Texas.

SEX	#	Rate*
M	27	1.0
F	13	0.5
Total	40	0.8

RACE	#	Rate
*W***	20	0.8
B	5	0.7
H	14	0.7
O	0	--
1 of undetermined race		

AGE	#	Rate
< 1 yr.	23	7.1
1-4	13	1.0
5-9	2	0.1
10-14	0	--
15-17	2	0.2

HIGH INCIDENT COUNTIES ‡	#	Rate
Bexar	5	1.3
Harris	5	0.6
Dallas	4	0.7
Travis	3	1.9

* per 100,000 population ** **W**hite;**B**lack;**H**ispanic;**O**ther ‡ County of Residence

Source: Texas Department of Health, Bureau of Vital Statistics

. More than twice as many male children died from suffocation as females.

. Mortality rates due to suffocation are virtually the same among racial groups.

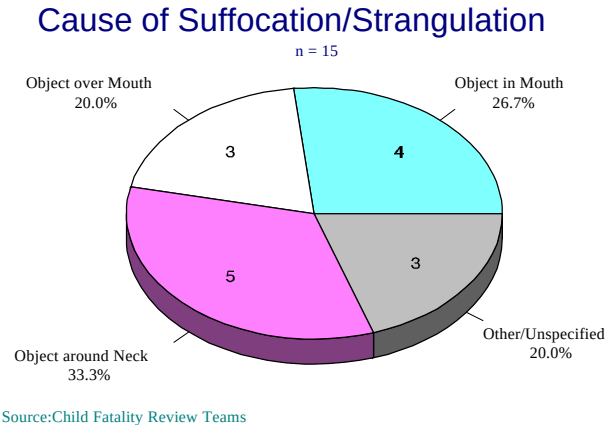
. Suffocation deaths among children occur almost exclusively to children under age 5.

. The infant mortality rate due to suffocation far surpasses that of children older than 1 year.

. There were more than twice as many suffocation deaths in June and August than in any other month.

. 38% of suffocation/strangulation deaths were reviewed by child fatality teams.

REVIEWED SUFFOCATION/STRANGULATION DEATHS (n=15)



Source:Child Fatality Review Teams

. More of these deaths were due to an object around the neck than any other cause.

FIRE/BURN DEATHS

Deaths due to fire remains one of the top ten leading causes of death for Texas children. The deaths during 1995 are a 30% increase from the total for the previous year. While this continues a short-term pattern of steady increase since 1992, the rates of fire deaths among children has decreased since 1980.

SEX	#	Rate*
M	44	1.6
F	34	1.3
Total	78	1.5

RACE	#	Rate
*W***	35	1.4
B	24	3.4
H	17	0.9
O	0	--

AGE	#	Rate
< 1 yr.	10	3.1
1-4	42	3.3
5-9	16	1.1
10-14	8	0.6
15-17	2	0.2

HIGH INCIDENT COUNTIES ‡	#	Rate
Tarrant	11	3.0
Dallas	7	1.2
Harris	9	1.0
Bowie	4	18.0
McClennan	4	7.9
Montgomery	4	6.7

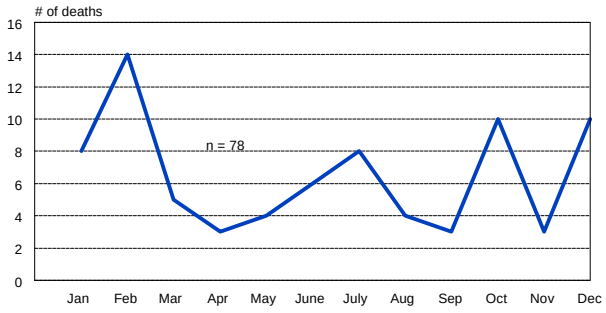
* per 100,000 population ** **W**hite;**B**lack;**H**ispanic;**O**ther ‡ County of Residence
Source: Texas Department of Health, Bureau of Vital Statistics

. Fire mortality rates are much higher for African-American children than for other racial groups.

. The mortality rates due to fire for young children are 3 times higher than for children older than 5.

. The deaths in Bowie and Montgomery Counties were each due to a single incident. These multiple deaths due to a single fire inflate mortality rates in lesser populated areas.

Fire/Burn Deaths by Month



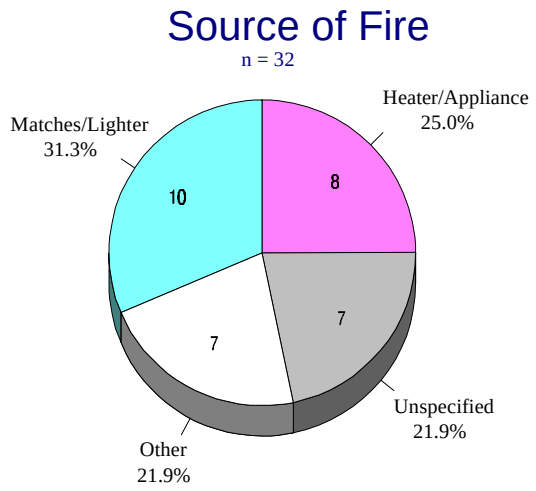
Source:Texas Department of Health, Bureau of Vital Statistics

. Fire/burn deaths are highest in winter months and reach lows during the summer.

. The July spike in deaths does not appear to be related to the Independence Day holiday.

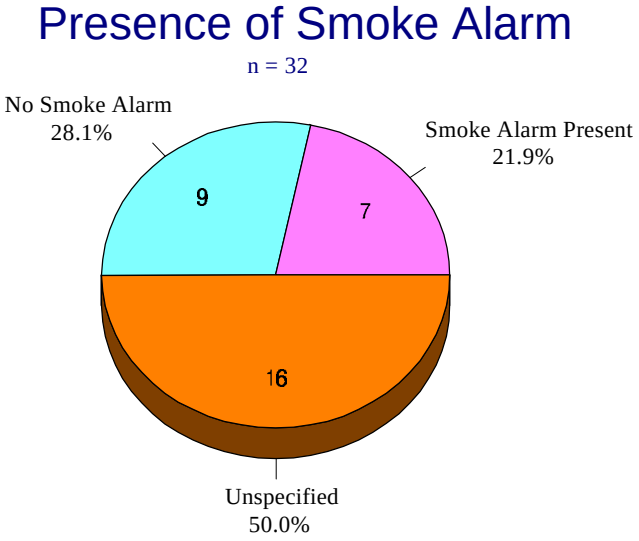
. 41% of the fire/burn deaths were reviewed by child fatality teams.

REVIEWED FIRE/BURN DEATHS
(n = 32)



Source:Child Fatality Review Teams

. There was no clear predominant source of fire among the cases reviewed by child fatality teams.



. Smoke alarms were not present in over half of the fatalities in which the information was available.

. In the cases in which smoke alarms were present, all were operative.

FIREARM DEATHS

Firearm deaths include homicides, suicides, and unintentional deaths in which firearms were involved. More than 60% of childhood homicides and suicides are committed with a firearm. During 1995, there were 253 deaths of Texas children involving firearms. This is a 16% decrease in the number of deaths from the previous year, yet substantially higher than for any year during the 1980s.

FIREARM FATALITIES

SEX	#	Rate*
M	213	7.8
F	40	1.5
Total	253	4.8

RACE	#	Rate
*W***	72	2.8
B	60	8.6
H	111	5.8
O	3	2.4
7 of undetermined race		

AGE	#	Rate
< 1 yr.	0	--
1-4	9	0.7
5-9	15	1.0
10-14	43	3.0
15-17	186	22.2

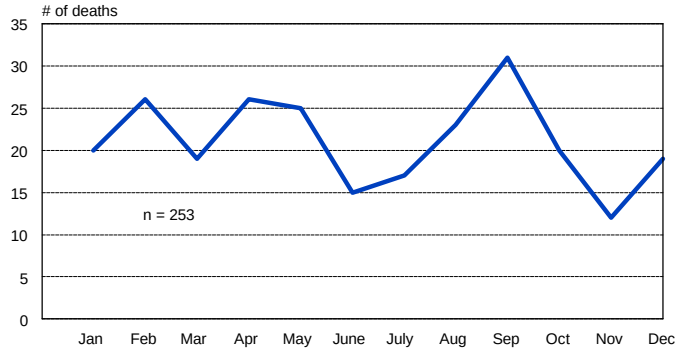
HIGH INCIDENT COUNTIES ‡	#	Rate
Harris	51	5.7
Dallas	39	6.9
Bexar	31	8.3
Tarrant	21	5.7
Galveston	11	17.7

* per 100,000 population ** **W**hite;**B**lack;**H**ispanic;**O**ther ‡ County of Residence

Source: Texas Department of Health, Bureau of Vital Statistics

- Firearm mortality rates are 5 times higher for males than females.
- Firearm mortality rates for White children are less than half those of other racial groups.
- Nearly 75% of the firearm deaths occurred to children 15-17 years old.

Firearm Deaths by Month



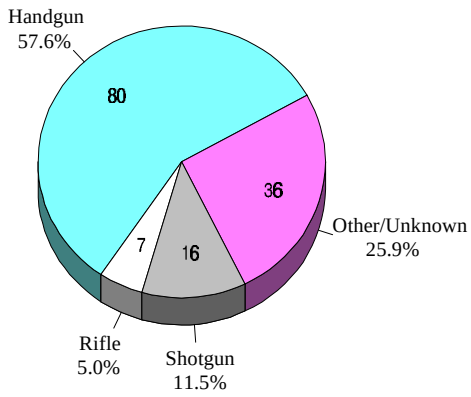
Source:Texas Department of Health, Bureau of Vital Satistics

- There are nearly 3 times as many firearm fatalities in September as in November.
- 55% of the firearm deaths were reviewed by child fatality teams.

REVIEWED FIREARM FATALITIES
(n = 139)

Type of Firearm

n = 139

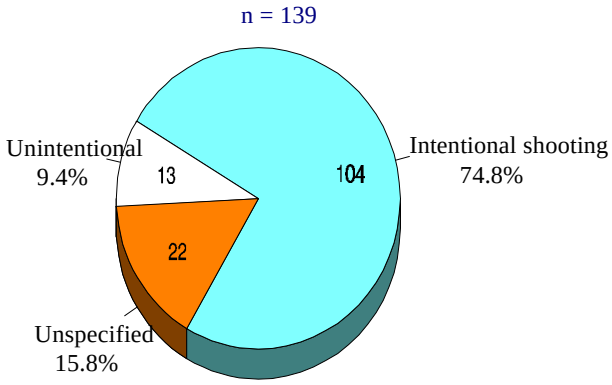


Source:Child Fatality Review Teams

. The majority of firearm fatalities reviewed by child fatality teams were committed with a handgun.

Circumstances of Shooting

n = 139



Source:Child Fatality Review Teams

. In cases reviewed by child fatality teams, three-fourths of the children who died from firearms were intentionally shot.
. At least 9% of the reviewed firearm fatalities were due to someone playing with a gun.

HOMICIDES

Homicide is distinguished from other means of injury death by the intentionality. These are cases that involve the intentional death of another. The 259 child homicide deaths in Texas during 1995 continues a steady decline following a high of 283 deaths in 1991. While this decline is encouraging, the 1995 rate is still 30% higher than in any year during the 1980s.

SEX		
	#	Rate*
M	190	6.9
F	69	2.7
Total	259	4.9

RACE		
	#	Rate
*W***	54	2.1
B	76	11.0
H	127	6.5
O	1	0.8
1 of undetermined race		

AGE		
	#	Rate
< 1 yr.	21	7.1
1-4	39	3.0
5-9	24	1.7
10-14	29	1.9
15-17	146	17.3

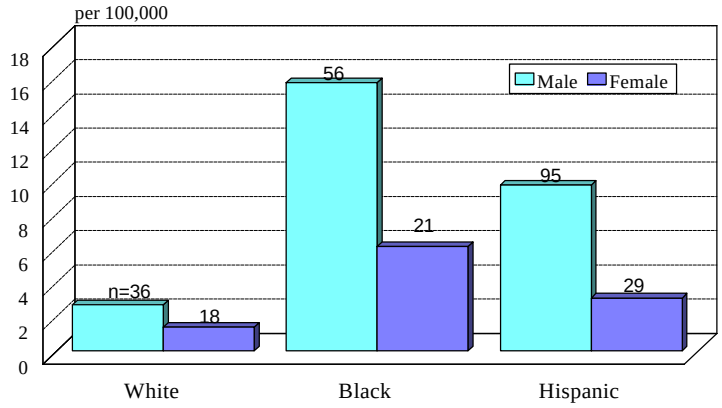
HIGH INCIDENT COUNTIES ‡		
	#	Rate
Harris	53	5.9
Dallas	50	8.9
Bexar	28	7.5
Tarrant	20	5.5

* per 100,000 population ** **W**hite;**B**lack;**H**ispanic;**O**ther ‡ County of Residence

Source: Texas Department of Health, Bureau of Vital Statistics

- The ratio of male to female homicides is nearly 3:1.
- The homicide rate for White children is 3 - 5 times lower than for other racial groups.
- Over half the child homicides occurred to children at least 15 years of age.
- There is no clear pattern in the monthly incidence of child homicides.

Homicide Rates
by Race and Sex

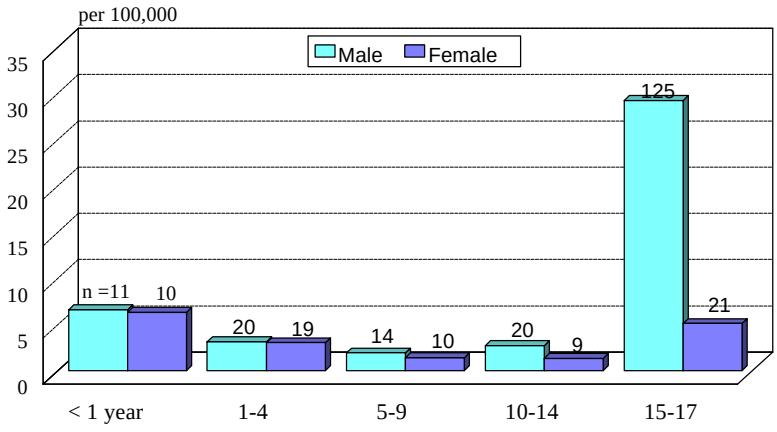


Source:Texas Deparment of Health, Bureau of Vital Statistics

. Homicide rates for African-American children far surpasses their White and Hispanic counterparts.

. Homicide rates for Hispanic children are about 3 times higher than for Whites.

Child Homicide Rates
by Age and Sex



Source:Texas Department of Health, Bureau of Vital Statistics

. Generally, there are an equal number of male and female homicides for children younger than 10.

. There are nearly 4 times as many homicides among white males 1 - 4 years of age as among white females the same age.

. All homicides of 10-14 year old White children were females.

. Male homicides outnumber female homicides by at least 4:1 for all children over age 10.

. 58% of the homicides were reviewed by child fatality teams.

Child On Child Violence

Since the article written by Dr. John Caffey in 1946, *Multiple Fractures in the Long Bones of Infants Suffering From Subdural Hematoma* (Amer J. Roentgen 56:163-73), in which he described six infants "who suffered from combination of subdural hematomas and characteristic bone lesions caused by what Dr. Caffey mistakenly called "parent-infant stress syndrome", both understanding and recognition of child abuse in the United States has greatly improved. We now know that at least 2,000 children die from abuse or neglect each year, and another 18,000 are left permanently disabled. Most of these children are under the age of four. Indeed, while the Centers for Disease Control and Prevention estimate that abuse and neglect annually kill 5.4 out of every 100,000 children under the age of four, CDC also estimates that misclassification of childhood deaths probably means that this figure should be 11.6 out of every 100,000 - more than the country's overall murder rate of 10 per 100,000.

In Texas in 1995, there were 4,041 reported deaths of children under the age of 18. Under the age of 5 years, there were 2,686 deaths in the same year. Of these, 65 deaths were classified as *homicide* (2.4%). During the same year, there were 885 deaths of children between the ages of 13 to 17 of which 170 were classified as *homicide*. After accident, *homicide* was in fact the leading cause of death, accounting for 19.2% of death (Table I).

Table I: Homicides and Total Deaths in 1995
Bureau of Vital Statistics, Department of Health, Texas

Age Group	Total Deaths	No of Homicide	% Homicide
Under 5 years	2,686	65	2.4
6 to 12 years	438	24	5.5
13 to 17 years	885	170	19.2
TOTAL	**4,009**	**259**	**6.5**

In fact, nearly two-third of all *homicide* victims were in the age-group 13 to 17 years as illustrated in Table II.

Table II: Homicides by Age Group in Texas, 1995
Bureau of Vital Statistics, Department of Health, Texas

Age Group	No. of Homicide	% of Homicide
Less Than One Year	21	8.1
1 to 5 years	44	17.0
6 to 12 years	24	9.3
13 to 17 years	170	65.6
TOTAL	**259**	**100.0**

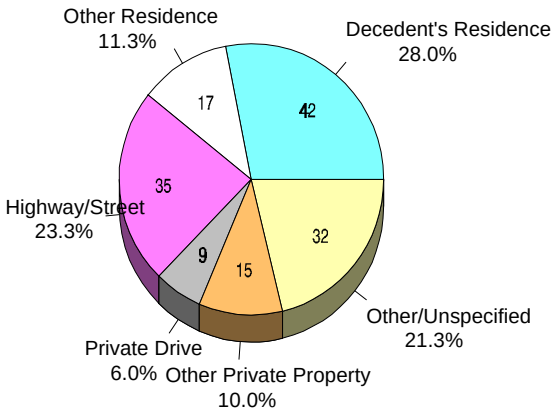
There are many published studies on violent crimes which indicate that children under 5 are in preponderantly victimized by family member (50%) and then by acquaintances (41%). Strangers infrequently victimize children under the age of 5 years (9%) (H. Synder and M. Sickmund. 1195 (August). *Juvenile Offenders and Victims: A National Report*. Washington, D.C.)

Who victimizes children from ages 13 to 17, which accounts for over two-thirds of all homicides in juveniles ? This answer remains unclear in Texas, although we do know from death certificate data that 89% of such children die from different types of firearm injuries. Some of these deaths are clearly associated with gang related activities. Data obtained from Juvenile Probation Department indicates that in 1995, there were 29 murders committed by juveniles. How old were these children ? And who were the victims ? Today, youth gangs exist in nearly every State and one report estimates that more than 3,875 youth gangs with a total of more than 200,000 gang members are established in 79 largest U.S. cities (Spergel, I. 1995. *The Youth Gang Problem: A Community Approach*. New York, N.Y.: Oxford University Press). Researchers have identified a number of factors that put youth at risk of gang involvement: poverty, school failure, substance abuse, family dysfunction, and domestic and social violence. These and other factors regarding child on child violence remain unclear and in order to institute preventive measures to reduce child on child violence, accurate and reliable data needs to be collected for the State of Texas.

REVIEWED HOMICIDES
(n = 150)

Scene of Homicide

n = 150



Source:Child Fatality Review Teams

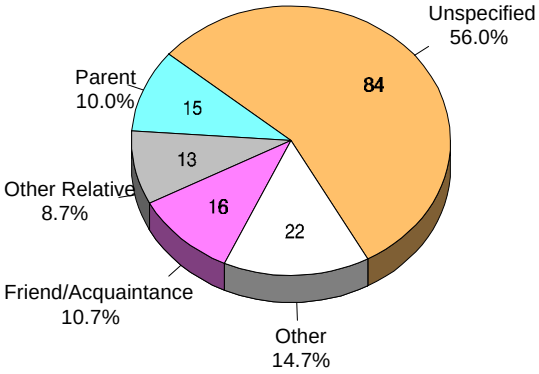
. 39% of the child homicides occurred in their own or someone else's home.

. The vast majority of the homicides in a home occurred to children less than 10 years old.

. 40% of the reviewed homicides of children older than 10 years occurred on a highway or street.

Victim-Perpetrator Relationship

n = 150



Source:Child Fatality Review Teams

. Of those reviewed cases in which the relationship was known, most of the children were killed by a relative.

. At least 40% of the 15-17 year old children were murdered by someone other than a family member.

. At least 53% of the pre-schoolers (ages 1-4) murdered were witnessed by someone in charge of watching the child.

SUICIDES

The 115 suicides among Texas children in 1995 is a 7% decrease from the previous year. The pattern from the 1980s, however, indicate a steadily increasing rate of suicide. The suicide rate of 2.2 per 100,000 in 1995 is nearly 40% higher than the 1980 rate.

SEX	#	Rate*
M	92	3.4
F	23	0.9
Total	115	2.2

RACE	#	Rate
*W***	67	2.6
B	7	1.0
H	38	2.0
O	2	1.6
1 of undetermined race		

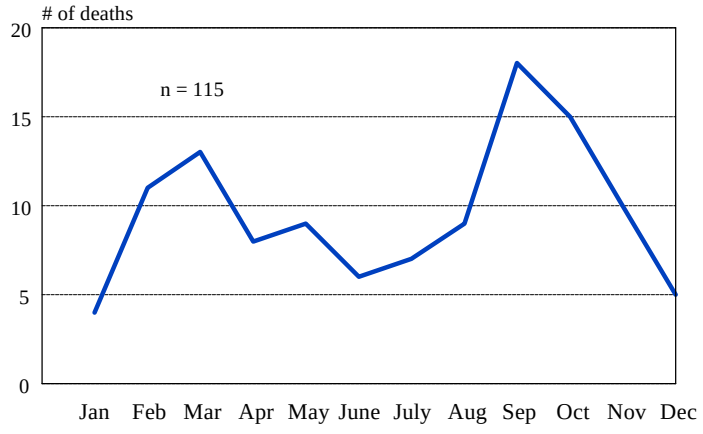
AGE	#	Rate
< 1 yr.	0	--
1-4	0	--
5-9	1	0.1
10-14	32	2.2
15-17	82	9.8

HIGH INCIDENT COUNTIES‡	#	Rate
Harris	22	2.5
Bexar	15	4.0
Dallas	8	1.4
Tarrant	6	1.6
Galveston	5	8.1

* per 100,000 population ** **W**hite;**B**lack;**H**ispanic;**O**ther ‡ County of Residence
Source: Texas Department of Health, Bureau of Vital Statistics

- The ratio of male to female suicides is 4:1.
- Suicide among children occurs almost exclusively among teenagers.

Suicides by Month

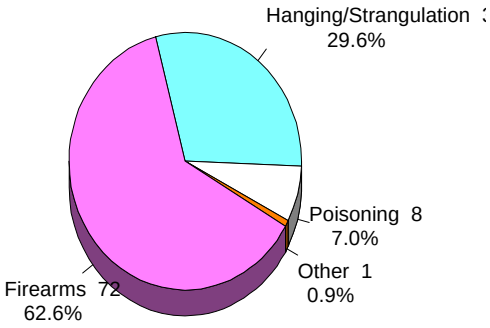


Source:Texas Department of Health, Bureau of Vital Statistics

- September and October were months with the highest incidence of suicide among children.

Method of Suicide

n=115



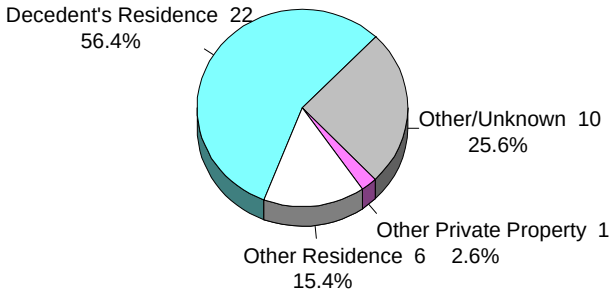
Source:Texas Department of Health, Bureau of Vital Statist

. Twice as many suicides among children were committed with firearms than any other method.

. 33% of the suicide deaths were reviewed by child fatality teams.

Scene of Suicide

n = 39



Source:Child Fatality Review Teams

. In 57% of the reviewed cases, the suicide took place in the child's home.

FROM THE MEDICAL EXAMINER

by Nizam Peerwani, M.D.

Mortui vivos docent - The dead teach the living

"Everyone who dies in a civilized country should have an autopsy", stated Dr. George Lundberg, chief editor of JAMA, in an address delivered to the California Medical Association in Spring 1983. This marked the beginning of Dr. Lundberg's and the American Medical Association's public campaign to enhance the rate of autopsies in the United States. In the early '80s in the United States, approximately 2,000,000 persons died per year of whom 280,000, or slightly less than 15% were autopsied. This was a far cry from the earlier days, when in most teaching hospitals, such as the Johns Hopkins, the autopsy rate exceeded 75%! Williams Osler (1849-1919), an articulate spokesman of all things medical wrote:

"To investigate the causes of death, to examine carefully the condition of organs, after such changes have gone on in them as to render existence impossible, and to apply such knowledge to the prevention and treatment of disease [future cases], is one of the highest objects of the physician".

Osler's feelings towards autopsy were not unique. In fact, in the early part of this century, at least a year of pathologic anatomy was included in the post graduate medical training and nor was this training unique to the United States. In the great medical centers of Europe, performance and study of autopsies was considered the cornerstone of the practice of medicine. These spectacular years, when autopsy and its proponents presided over the unprecedented growth of medicine, came after a half century during which Karl Rokitansky (1804-1878) at the Allgemeine Krankenhaus in Vienna, and Rudolf Virchow (1821-1902) at the Charite Hopital in Berlin, had raised autopsy practice from an occasional exotic event to a central necessity in the science and practice of medicine. And these practices paid off. Modern concepts of disease and health were developed, thousands of diseases were identified, treatments developed and iatrogenic injuries and deaths prevented by postmortem evaluation of innumerable patients.

Two decades since Dr. Lundberg's "declaring war on the nonautopsy..." the autopsy rate in all major hospitals in the United States continues to decline. There is no single reason for the present decline in autopsy. Rather, there is a constellation of reasons,

some interrelated, others quite separate. But related to almost every reason for the decline is the feeling that autopsy practice, which paved the way for medical progress through nearly two centuries, has failed to evolve significantly during the past 50 years, a period in which both medicine and society have undergone a broader spectrum of change than in the entire previous history of humankind. Central to this discussion is the question whether in this high-tech age of medical practice, where the insides of a patient can be "gleamed" during the life of the patient, an autopsy is of any practical use. Stevanovic et. al. [Human Pathology 1986;17:1225-30], reported retrospective study of 2,145 consecutive autopsies and demonstrated that a 31% decrease in the number of autopsies was accompanied by a 8.2% increase in the incidence of major diagnostic discrepancies (or discordance).

Other reasons have also been sited for the decline in autopsies (Arch Pathol Lab Med, 116:1128-1136, 1992) including:

1. Poor education of medical students regarding benefits of an autopsy
2. Diminished interest in performing autopsy by pathologists
3. Fear of litigation by treating physician
4. Physician’s fear of “being wrong”
5. Lack of financial incentive for pathologists
6. Removal of requirement by Joint Commission on Accreditation of Healthcare Organizations

Although the term "discrepancy" has stuck in the literature, the preferred term would be "discordance". Like everything else in science, medical conclusions or diagnosis are made on preponderance of data available and depending upon the type of illness and the availability of diagnostic tools, there may be total concordance at autopsy (i.e. "true positives" or "true negatives") or discordance ("false positives" or "false negatives"). It is well established that some diseases are clearly difficult to recognize clinically than other diseases. Battles et. al. in their study [JAMA 1987; 258:339-44] demonstrated that there was as high as 46.8% discordance in the clinical diagnosis of pulmonary embolism, 45.1% for peritonitis and so on.

During the calender year 1995, there were a total of 4,009 deaths in children under the age of 18 years (Table 1) in the State of Texas. Of these, 1992 were autopsied giving an overall autopsy rate of 49.6%. Deaths in Texas are certified by three entities including

attending physicians, justices of peace and medical examiners. The State Law requires that certain categories of death, including deaths due to unnatural causes, suspicious deaths and deaths that occur within 24 hours of admission to a hospital or unattended by a physician, must be certified by an elected justice of peace or an appointed medical examiner. Of the total 4,009 deaths in 1995, 2,216 deaths were certified by physicians (55.3%), 732 by justices of peace (18.2%) and 1,061 by medical examiners (26.5%). The physicians, who certify more than half of all such deaths, had the lowest autopsy rate of 25.6% whereas the medical examiners had the highest rate of 89.4%.

Table 1: *Total Deaths and Autopsies: 1995 v. 1985*[1]

Certifying Agency	**1995**			**1985**		
	Total Deaths	Autopsies		Total Deaths	Autopsies	
		#	%		#	%
Physicians	2,216	568	25.6	3,200	1,028	32.1
Justices of Peace	732	475	64.9	750	335	44.7
Medical Examiners	1,061	949	89.4	1,119	835	74.6
TOTAL	**4,009**	**1,992**	**49.7**	**5,069**	**2,198**	**43.4**

[1](Deaths in Children under 18 years of age: Statistics provided by Bureau of Vital Statistics, Department of Health, State of Texas)

The overall rate of autopsy in 1995 as compared to 1985 has increased by 6.3%. This increase is primarily due to increase in number of autopsies ordered by justices of peace and medical examiners. In fact over the last ten years, the physicians have recorded a declining rate of autopsy as illustrated in Table 1.

Recently, the Texas Legislature has required all justices of peace to order an autopsy if the deceased was a child younger than six years of age and the death was reported under Chapter 264, Family Code. This law (Section 4 Subsection (e) Article 49.10 of Code of Criminal Procedure) became effective as of September 01, 1995. Although it is too early to say, nonetheless, based on current data available (Table 2), the overall percentage of autopsies ordered by justices of peace has increased by 5% during the period September to December 1995 as compared to the period January to August 1995.

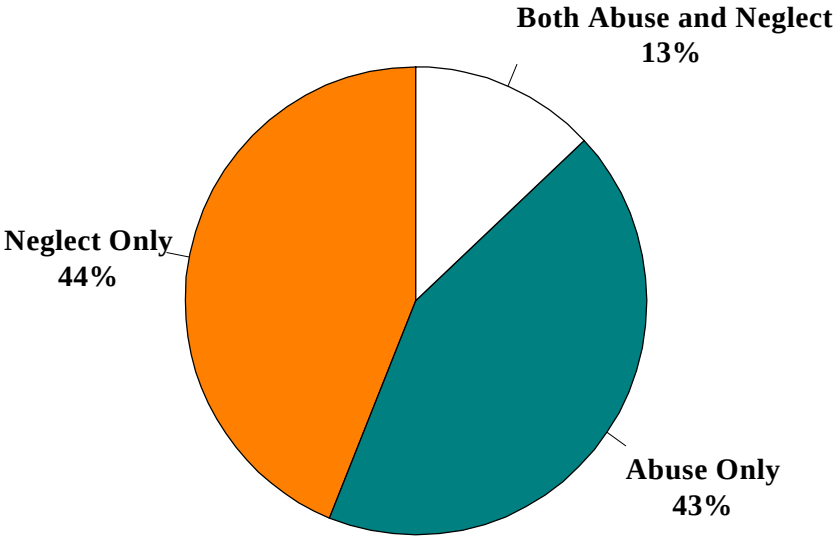
Table 2: *Deaths certified by Justices of Peace for two periods in 1995*[2]

Certifying Agency	January to August 1995			September to December 1995		
	Total Deaths	Autopsies		Total Deaths	Autopsies	
		#	%		#	%
Justices of Peace	502	318	63.3	230	157	68.2

[2](Deaths in Children under 18 years of age: Statistics provided by Bureau of Vital Statistics, Department of Health, State of Texas).

In summary, there has been a gradual increase in rate of autopsy for children under the age of 18 years in the State of Texas during the past 10 years. This increase is primarily due to increases in number of autopsies ordered by justices of peace and the medical examiners. Physicians, who certify slightly more than fifty percent of such deaths, on the other hand, have ordered fewer autopsies during the same period. This declining rate of autopsies by the physicians in Texas has not been examined and needs to be addressed.

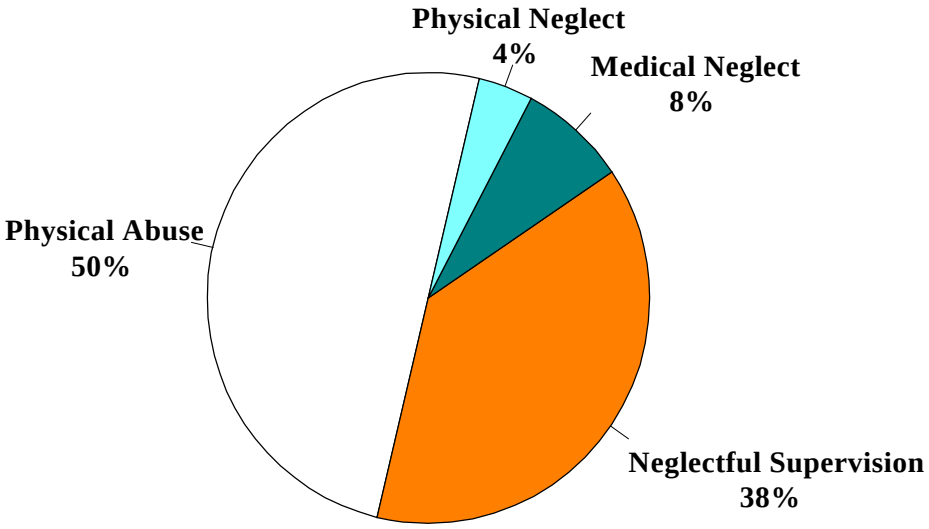
Findings of
Reason to Believe Investigations
Fiscal Year 1995



Reason to Believe Investigations

Abuse Only	**42**
Neglect Only	**43**
Both Abuse and Neglect	**13**
Total Child Abuse/Neglect Deaths	**98**

Type of Abuse/Neglect of Fatality Victim Fiscal Year 1995

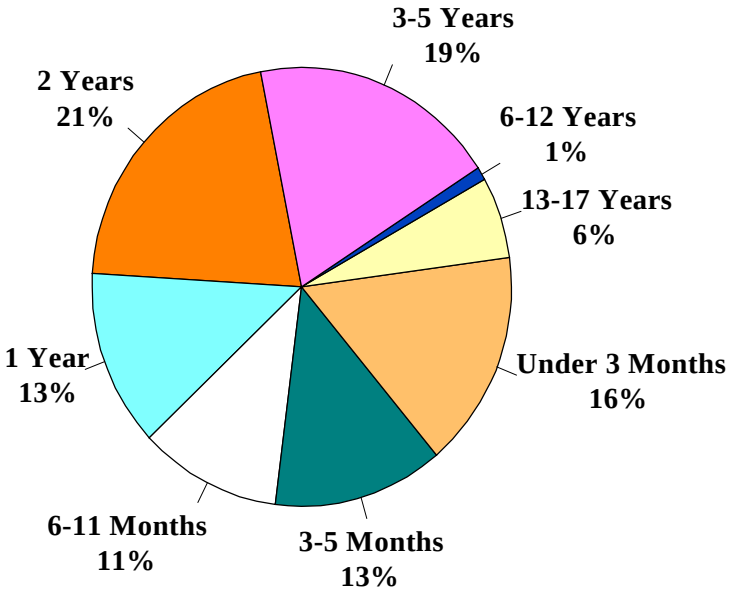


Type of Abuse/Neglect

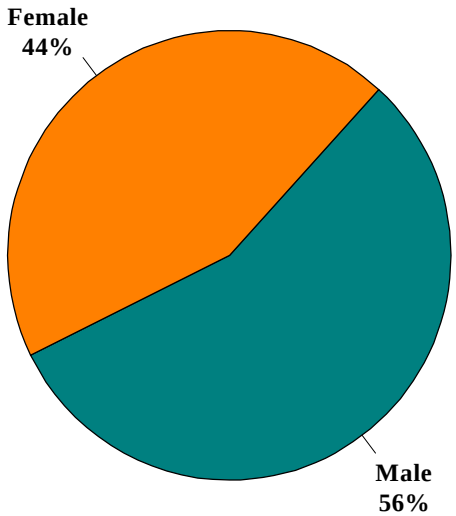
Medical Neglect	**8**
Neglectful Supervision	**37**
Physical Abuse	**49**
Physical Neglect	**4**
TOTAL VICTIMS	**98**

Characteristics of Fatality Victim
Fiscal Year 1995

Age

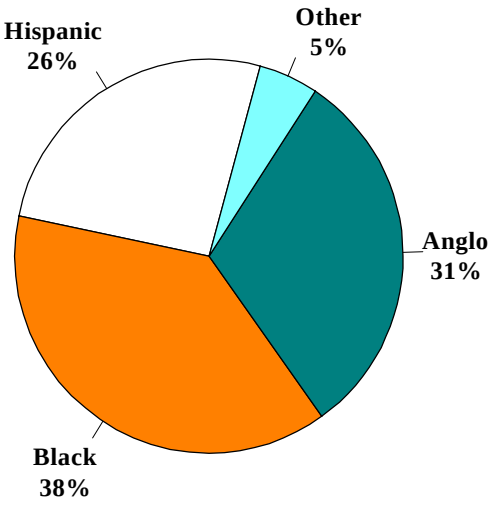


Sex



Characteristics of Fatality Victim
Fiscal Year 1995

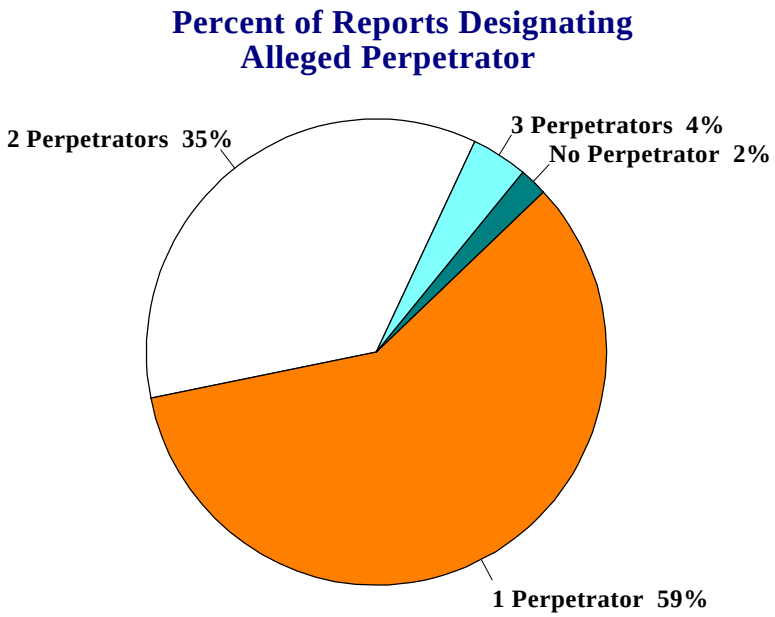
Ethnicity



Ethnic Group

Anglo	**30**
Black	**38**
Hispanic	**25**
Other	**5**
TOTAL	**98**

Characteristics of Alleged Perpetrators in Fatality Reports
Fiscal Year 1995

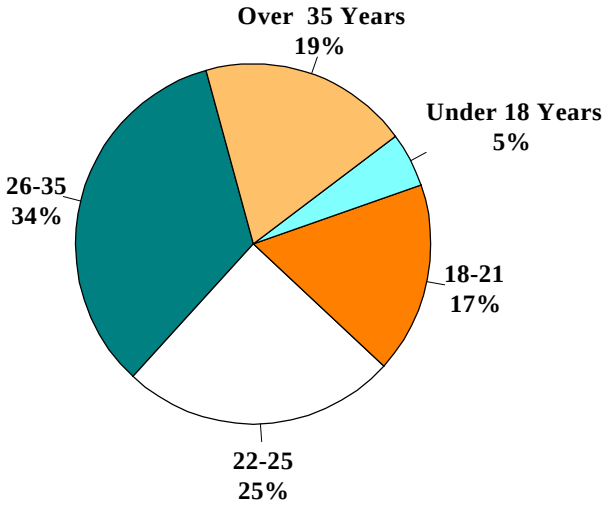


Reports Designating Alleged Perpetrator

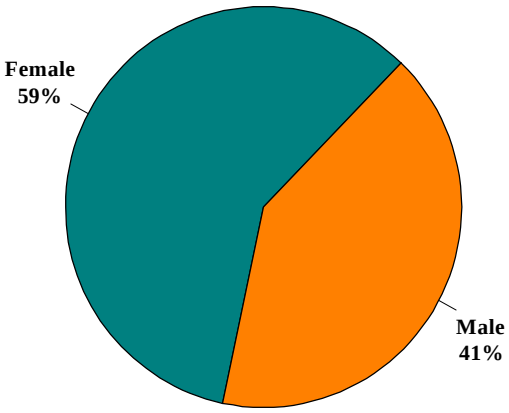
No Perpetrator	**2**
1 Perpetrator	**55**
2 Perpetrators	**33**
3 Perpetrators	**4**
TOTAL REPORTS	**94**
NUMBER OF ALLEGED PERPETRATORS	**133**

Characteristics of Alleged Perpetrators in Fatality Reports
Fiscal Year 1995

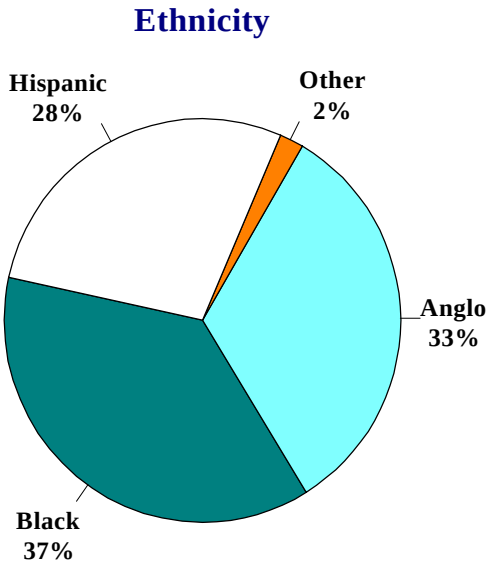
Age



Sex



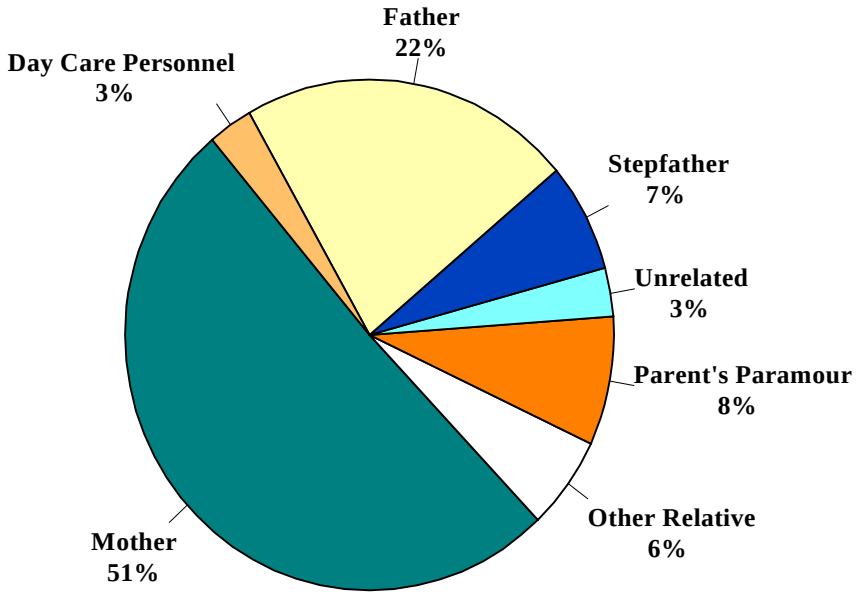
Characteristics of Alleged Perpetrators in Fatality Reports
Fiscal Year 1995



Ethnic Group

Anglo	**44**
Black	**49**
Hispanic	**37**
Other	**3**
TOTAL	**133**

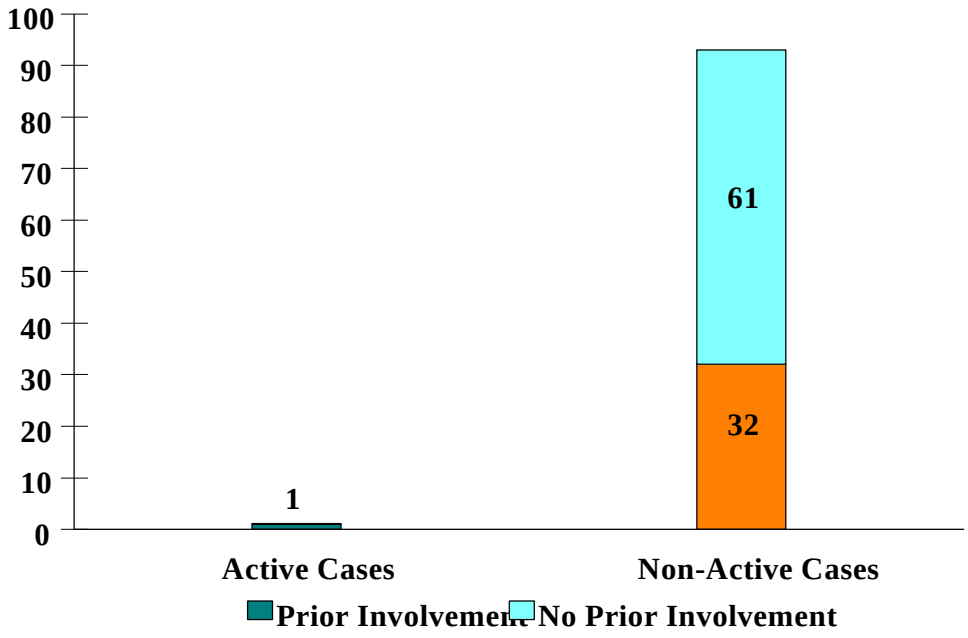
Relationship of Alleged Perpetrator to Oldest Victim
Fiscal Year 1995



Relationship

Father	**29**
Mother	**68**
Stepfather	**9**
Parent’s Paramour	**11**
Other Relative	**8**
Unrelated	**4**
Day Care Personnel	**4**

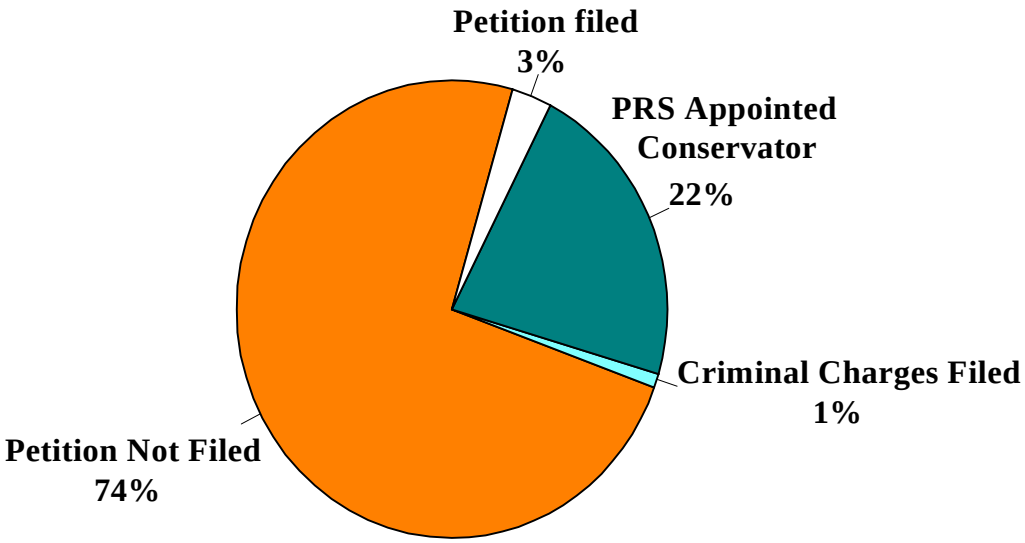
Status of Protective Services Involvement at Time of Injury
Fiscal Year 1995



	Active Protective Services Cases	Non-Active Protective Services Cases
Prior Involvement	1	32
No Prior Involvement	0	61
TOTAL	1	93

Legal Action for Surviving Children in Home of Victim

Fiscal Year 1995



Relationship

Petition Not Filed	**120**
Criminal Charges Filed	**1**
Petition Filed	**5**
PRS Appointed Conservator	**36**
Conservator Not Appointed	**0**
TOTAL	**162**